

Annual Report 2018

SINTEF Energy Research has a pronounced research profile and is involved in six of the Research Council of Norway's Research Centres for Environmentally-Friendly Energy (CEERs) in partnership with industry and other research institutions. The institute enjoys a strong position within the EU's Framework Research Programme. The high-level technical profile developed by the institute, via activities such as assisting the Norwegian Parliament (Storting) in achieving its cross-party Climate Change Policy Consensus, means that its research community is now at the forefront of European energy research.



SINTEF Energy develops technologies for the realisation of tomorrow's sustainable energy systems in Norway, Europe and globally. In the European market, SINTEF Energy Research works to support the EU's climate change and energy goals, which Norway has endorsed. In the Norwegian market, SINTEF Energy Research works with industrial and research partners and the funding agencies in the fields of energy supply security and Norwegian business competitiveness.

SINTEF Energy Research focuses on the specific task of promoting the application of new technologies, including innovative enabling technologies, with the aim of developing the next generation of energy solutions. We offer leading expertise in the fields of renewable energy, the decarbonisation of fossil energy sources, and clean energy systems for the industrial sector. SINTEF Energy Research also leads the way in research and development into integrated energy systems, including digitalisation and electrification, that contribute to the promotion of a more holistic and sustainable total energy system.

SINTEF Energy Research has its base on the Gløshaugen university campus in Trondheim, and its business address is Sem Sælands vei 11, 7034 Trondheim. The SINTEF Energy Lab is located at Risvollan, three kilometres south of Gløshaugen.

The institute's owners consist of the SINTEF Foundation (61.0%), *Energi Norge* (33.4%) and *Norsk Industri* (5.6%). The institute is a non-profit organisation and awards no dividends to its owners. Financial surpluses generated by our projects are invested only in activities that promote achievement of the institute's goals.

Clients

Our projects are funded primarily by the industrial sector. Funding from industry is a prerequisite for obtaining additional funds from the Research Council of Norway. SINTEF Energy Research coordinates and carries out research projects that promote knowledge growth and wealth generation in the business and industrial sectors.

- In April, our research groups visited Japan to present their expertise in the field of hydrogen research. The researchers, many of whom were linked to the HYPER project, participated at the Norwegian pavilion during the FC EXPO in Tokyo.
- During the Arendal Political and Business Forum "*Arendalsuka*", NTNU Energy and SINTEF Energy Research organised an open meeting to address the concept of Norway being the "Battery of Europe". The Norwegian Minister of Petroleum and Energy was present, together with key representatives of some of our most important clients. SINTEF Energy Research also took part in an event addressing smart cities and EU projects.
- In September SINTEF and NTNU held their annual seminar in Brussels. Many of our most important clients were invited, and the objective was to demonstrate the opportunities available to Norwegian businesses linked to EU projects.
- October saw the inaugural award of the CINELDI prize, which went to a pilot project being carried out at electricity grid operators *Hafslund nett*.
- In December Nils Røkke, SINTEF's Executive Vice-President for Sustainability, attended the UN Climate Change Conference (COP24) with the aim of putting sustainable energy systems on the agenda. There he met key politicians, NGOs and clients.
- On 13 December Norwegian Petroleum and Energy Minister Kjell-Børge Freiberg announced that SINTEF Energy Research will be the host organisation for a new research centre called LowEmission, which aims to contribute to the reduction of greenhouse gas emissions from the Norwegian shelf by 40 per cent. The centre has a budget of close to NOK 350 million and will be in operation for eight years.

Research

The global community is facing major challenges in terms of obtaining sufficient energy to meet its needs and in implementing the energy system transitions needed to ensure that the impacts of climate change can be resolved as quickly and as cost-effectively as possible. The institute is engaged in many research disciplines within the fields of energy supply, energy use and oil and gas technology, all of which are relevant in this context. Our ambition is to become a world leader in the field of energy-related research.

At the last count, the number of scientific articles published in 2018 was 166. The final number of publications and publication credits for 2018 will be available in the online version in early April. We have experienced a gradual increase in citations over the years, with 3,167 in 2018.

- Øivind Wilhelmsen, a 32 year-old research scientist from SINTEF Energy Research's Department of Gas Technology and adjunct professor at NTNU, was awarded the Research Council of Norway's 2018 prize for young researchers. Wilhelmsen has focused on research into the surfaces of nanoscopic objects.
- Researchers from SINTEF Energy Research and the Cedren CEER published their "Environmental Design Handbook" in Chinese. The handbook addresses eco-friendly hydropower development. Cedren also published its route map for Norway's role as the "Battery of Europe".

- In 2018 offshore wind researchers from the NOWITECH CEER, SINTEF Energy Research and NTNU had their scientific textbook on offshore wind energy published by Wiley.
- On 25 April, the report "*Industrielle muligheter og arbeidsplasser ved storskala CO₂-håndtering i Norge*" (Industrial opportunities and job creation related to large-scale CCS in Norway) was presented. The report was written by SINTEF and NTNU (the latter in an advisory role) under contract to the Confederation of Norwegian Enterprise (NHO), the Norwegian Confederation of Trade Unions (LO), the United Federation of Trade Unions, the Federation of Norwegian Industries, the Norwegian Oil and Gas Association and the trade union *Industri Energi*.
- In 2018, 37 summer researchers worked on a variety of projects at all the institute's departments. At the summer researcher conference in August, the students presented and made pitches for their projects.
- In June, the NCCS CEER arranged the IEA GHG International CCS Summer School, at which students from all over the world gathered to learn about CCS.
- The H2020 project CEMCAP, headed by SINTEF Energy Research, held its closing conference on 29 October.

People

At year-end 2018, SINTEF Energy Research had 257 employees, comprising 223 full-time equivalents (FTEs). The difference between the number of employees and FTEs results from the fact that we have a number of employees currently on doctoral leave and others working reduced hours. Of the active FTEs, we have 174 research personnel, 18 technicians and engineers, and 31 managers and administrative personnel. Fifty-nine per cent of our research scientists have doctorates. The proportion of female employees at SINTEF Energy Research is increasing. At year-end we employed 82 women and 175 men. The average age of our employees is 43.

Diversity and equal opportunity

SINTEF Energy Research employs personnel from 25 countries. SINTEF runs an integration programme for employees and their families. The programme offers traditional integration and ex-pat services, free Norwegian language courses, and tuition in English at the SINTEF School. During the recruitment process we evaluate applicants' qualifications in compliance with the intentions set out in legislation.

Work to promote equal opportunity is a fundamental principle exercised by SINTEF Group Management. Our human resources policies meet the requirements set out in the Norwegian Equal Opportunities Act (*likestillingsloven*). The proportion of women employed at the institute is 32 per cent, and 45 per cent of the institute's management team is female. We make every effort to boost the proportion of female research scientists by means of specific recruitment initiatives combined with a focus on the development of our senior female research scientists. Sixty-seven per cent of shareholder-elected, and 33% of employee-elected, members of the SINTEF Energy Research Board are women. The institute offers excellent employee benefit schemes and flexible working hours arrangements.

SINTEF carries out anonymous working environment surveys every second year. Salaries and working conditions are determined following negotiation with our union representatives. The institute is a signatory to the agreements that the Confederation of Norwegian Enterprise (NHO) has entered into with the employee organisations Tekna, NITO and NTL. SINTEF Energy Research makes only very limited use of temporary employment contracts.

Health, safety and the environment (HSE)

In 2018, sickness absence was recorded at 4.3%. In 2017 the figure was 3.8%.

SINTEF Energy Research has experienced a total of four occupational accidents in 2018:

- One that resulted in one day's sickness absence
- One involving a cut on an arm that required the use of first aid (bandaging) at the scene
- One involving a collision with an airport taxi, after which our employee was examined by a doctor
- An incident involving damage to material assets

In addition, the institute experienced seven near-misses, none of which entailed critical risk potential.

SINTEF Energy Research carries out systematic risk assessments and analyses. The institute has in place procedures for the disposal of various types of waste, including hazardous waste. SINTEF is certified in accordance with the ISO 14001 standard. The institute carries out no activities that involve pollution of the external environment. SINTEF Energy Research's most important contribution to the external environment is our research work, which for the most part is focused on eco-friendly solutions.

The annual accounts

2018 was a good year for SINTEF Energy Research. The institute recorded sales of NOK 494 million. Net project revenues increased by NOK 23 million (6%) to NOK 385 million. Our financial surplus amounted to NOK 35 million, representing an increase of NOK 2 million on 2017. Our operating margin was 9%, and our net financial revenues NOK 3 million.

Capital and reserves increased by NOK 28 million to NOK 395 million and constitute 64% of our total assets.

The Board can confirm that the prerequisites for the going concern assumption are in place, and has used this as the basis for preparation of the 2018 annual accounts. The Board is not aware of any circumstances that have arisen since the balance sheet date that affect its opinion regarding the company's financial status.

Liquidity risk

SINTEF Energy Research enjoys good liquidity. Surplus liquidity is placed partly in bank accounts and partly in a financial portfolio. The financial portfolio is managed by external portfolio managers together with similar portfolios held by other companies in the SINTEF Group.

Market risk

The institute recognises project revenues and expenditures in both euros and US dollars. Project revenues in foreign currencies make up 10% of our total project revenues. The majority of our revenues and expenditures are hedged.

Credit risk

SINTEF Energy Research is exposed to credit risk linked to client receivables. The accounts for recent years demonstrate that the institute has experienced only minimal losses.

The Board takes this opportunity to thank all employees at SINTEF Energy Research for an excellent year's work, both in terms of our scientific and financial results.

Trondheim, 26 March 2019

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